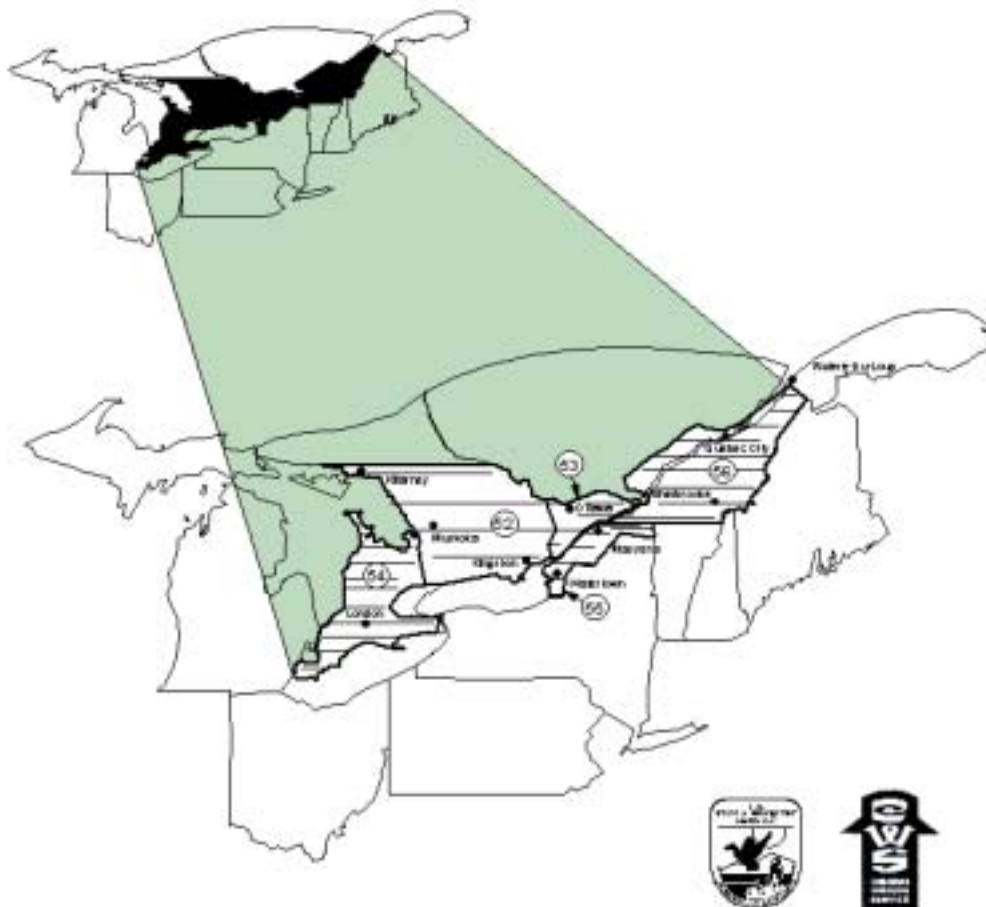


NEW YORK, EASTERN ONTARIO, and SOUTHERN QUEBEC

Waterfowl Breeding Population Survey

2003



2003 Waterfowl Breeding Population Survey in New York, Eastern Ontario, and Southern Quebec

May 2003

Strata Surveyed
52,53,54,55,56

Survey Conducted and Data Supplied by
United States Fish & Wildlife Service

Aerial Crew

Pilot/Observer
Observer

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Abstract

This survey has been conducted for the past 13 years in conjunction with the Black Duck Joint Venture to provide waterfowl breeding population estimates for New York, Southern Ontario, and Southern Quebec. In contrast with the winter of 2001-2002, the winter of 2002-2003 was very cold with near average snowfall throughout much of this region. The return of more mild temperatures in April removed ice cover from wetlands setting the stage for a normal initiation of the breeding season. Just prior to the start of population surveys, a pattern of cooler temperatures and increased precipitation emerged. During the survey period, temperatures were slightly below normals and frequent rain and a few minor snow events occurred. By the initiation of surveys wetland habitat conditions were generally good across all survey strata. The total breeding duck population was greater than the 2002 level, and was slightly above long-term averages. Dabbling duck population estimates over all were 64.9% above year 2002, and 20.2% below the long-term average. Divers were 16.9% above the 2002 estimate and 52.2% above the long-term average. Canada geese estimates increased, 13.5% from 2002 but were 7.3% below the long-term average.

Methods

The procedures followed in conducting this survey are detailed in the Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Survey, Section III, revised April 1987. The fixed wing pilot has surveyed these strata the 4 consecutive years. Both the fixed wing and helicopter observers, while new to this survey region, had considerable previous experience in aerial waterfowl surveys. A Partenavia P68 Observer aircraft was used for the survey. Visibility corrections were obtained using Bayesian updating procedures from data supplied by an ongoing helicopter visibility bias correction study being conducted in eastern Canada. No helicopter operations occurred in strata 52-56 during the 2003 survey, but did occur in neighboring crew areas.

Since 1998, waterfowl and habitat data have been collected using an onboard digital recording system designed to attribute each waterfowl observation with a geographic location recorded in

latitude/longitude. During data transcription, each observation is associated with pertinent information (i.e., stratum, transect, and segment, time, weather conditions, and geographic location).

Weather and Habitat Conditions

Stratum 52: Stratum 52 lies east of the Georgian Bay, north of Lake Ontario, south of the Ottawa River, and west of the line running from Ottawa to Kingston, Ontario. Topography varies from hilly in the north to rolling in the south. The northern part of the stratum is primarily mixed forest, except along the Ottawa River where some farming occurs. The southern half of the stratum is a mixture of woodland and agriculture. Many small to moderate size lakes are found throughout the area, with some large lakes connected by small streams. Small reservoirs and farm ponds are present. Water levels in this area are relatively stable.

Stratum 53: This is a small stratum located southeast of Ottawa, bounded on the north by the Ottawa River and on the south by the St. Lawrence River. The area is relatively flat with some rolling terrain along the west boundary. Agriculture is the primary land use of this area and it has been extensively cleared and drained. The remaining habitat consists of a few marshes, small streams and drainage ditches. Water conditions are variable in this area depending on the winter and spring precipitation and were good in 2003 as a result of near average winter snowfall and rain that fell just prior to and during the aerial survey.

Stratum 54: Stratum 54 includes much of the southwestern Ontario peninsula, bounded in the north by Georgian Bay, in the west by Lake Huron and Lake St. Clair, and in the south by Lake Erie. The terrain is flat in the south to rolling in the north. Agriculture predominates throughout this stratum. Significant wetland drainage has occurred. In southern portions of the stratum, woodlands are largely restricted to small lots and riparian areas. Deciduous woods transition to mixed forest in the north and forested area increases. Habitat in this stratum includes lake shore marshes, numerous field drainage ditches, small marshes and wooded wetlands, and riparian zones of streams. Water conditions are heavily influenced by winter and spring precipitation in this stratum. In 2003, water conditions were good in this stratum, due, again to near average winter snowfall and to spring rains which fell just prior to and during aerial survey operations.

Stratum 55: This stratum encompasses the St. Lawrence lowlands of New York, bounded by Lake Champlain to the east, the Adirondacks to the south, Lake Ontario to the west, and the St. Lawrence River to the north. The terrain varies from rolling to moderate in the south, to flat and slightly rolling to the north. Habitat consists of hardwood forests interspersed with streams, lakes, marshes, bogs, and wooded wetlands with many small marshes along the St. Lawrence River. Agriculture consists primarily of dairy operations and small farms. Some timber harvesting occurs. Water conditions are relatively stable in this stratum, however, as in 2002, spring rain and snow prior to the survey resulted in very good wetland and stream conditions in 2003. Standing temporary water was observed to cover large portions of fields and meadows in the St. Lawrence lowlands.

Stratum 56: This stratum is located in southern Quebec. The boundary lies just south of Montreal and extends to Quebec City, the west end of the Gaspé Peninsula, down to Maine, New Hampshire, Vermont, and New York borders, and back to Montreal. This area is flat in the west

trending toward rolling and mountainous in the east and southeast. Habitat in the west consists drainage ditches, farm ponds, small streams, and some tidal marsh along the St. Lawrence River. Western portions of this area are largely dominated by agricultural land-uses. Forestry and mining are important industries in eastern and southeastern portions of the stratum. To the east and southeast, along the U.S. border, habitat consists of small streams and drainage ditches, small lakes and wooded wetlands, bogs, and some larger lakes. Water conditions in this stratum, particularly in lowland areas to the west, are sensitive to winter and spring precipitation. In 2003, wetland conditions in lowland agricultural habitats in the western portion of this stratum were good, as were wetland, stream, and ditch habitats in the higher elevation, forested habitats in eastern portions of the stratum.

At completion of the 2003 survey, the overall outlook for waterfowl production from this region was good.

Table 1. Survey design for Ontario, New York, and Quebec, May 2003.

STRATUM	52	53	54	55	56
<u>Survey Design</u>					
Square Miles in Stratum	28,266	4,259	12,245	4,149	21,721
Square Miles Sampled in Stratum	180.0	45.0	166.5	54.0	234.0
Number of Transects in Stratum	4	4	9	5	10
Number of Segments in Stratum	40	10	37	12	52
Expansion Factor	157.03	94.64	73.54	76.83	92.82
<u>Current Year Coverage</u>					
Square Miles in Stratum	28,266	4,259	12,245	4,149	21,721
Square Miles Sampled in Stratum	180.0	45.0	166.5	52.6	234.0
Number of Transects in Sample	4	4	9	5	10
Number of Segments in Sample	40	10	37	12*	52
Expansion Factor	157.03	94.64	73.54	78.95	92.82

* portions of 2 segments in stratum 55 were un-sampled in 2003 due to low ceilings and mountain obscuration.

Breeding Populations

Total breeding duck populations were greater (34.6%) than 2002 levels, and exceeded the long-term average by 16.2%. The dabbling duck population estimate was 64.9% above year 2002, and 20.2% above the long-term average. The mallard estimate increased 16.2% over year 2002, and was 14.8% above the long-term average. The black duck population estimate was 66.2% above the 2002 estimate and 4.0% above the long-term average. Divers were 16.9% above 2002 estimates and 52.2% above the long-term average. The ring-necked duck population estimate decreased 35.1% from the all-time high estimate of 2002, while remaining 39.7% above the long-term average. The bufflehead estimate declined 37.1% while the goldeneye estimate

increased by over 700% from 2002 population levels. Buffleheads were 30.8% below the long-term average while goldeneye were 192.8% above the long-term average for this crew area. Canada geese increased 13.5% from 2002, but the estimated 2003 population size was 7.3% below the long-term average.

Table 2. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum with comparisons against the previous year and the long-term mean for Eastern Ontario and New York.

Species/Ponds	Stratum					2003 Total	2002 Total	1990-2002 Mean	% Change From	
	52	53	54	55	56				2002	1990-2002 Mean
Ducks										
Dabblers										
Mallard	67.4	14.7	36.0	25.8	50.5	194.3	167.1	169.3	16.2%	14.8%
Am. black duck	25.2	4.5	2.5	5.5	18.7	56.4	33.9	54.2	66.2%	4.0%
Gadwall	1.0	0.0	1.8	0.0	4.0	6.7	5.3	7.0	26.5%	-4.2%
Am. wigeon	0.0	0.0	4.7	0.0	8.4	13.1	8.0	17.3	63.9%	-24.2%
Am. green-winged teal	6.7	1.0	4.3	5.1	122.1	139.3	38.5	44.6	262.0%	212.2%
Blue-winged teal	3.2	0.0	3.8	0.0	0.0	7.0	0.0	51.9	--	-86.5%
N. shoveler	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.9	-100.0%	-100.0%
N. pintail	0.0	0.0	0.0	0.0	2.0	2.0	0.0	3.2	--	-37.9%
Subtotal	103.5	20.2	53.1	36.3	205.6	418.7	253.9	348.4	64.9%	20.2%
Divers										
Redhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	--	-100.0%
Canvasback	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	--	-100.0%
Scaups	6.8	6.7	2.8	0.0	0.0	16.4	0.0	7.7	--	112.3%
Ring-necked duck	29.5	0.3	6.3	7.5	31.1	74.7	115.1	53.5	-35.1%	39.7%
Goldeneyes	64.0	0.0	5.6	0.0	2.8	72.4	8.5	24.7	749.9%	192.8%
Bufflehead	10.8	0.0	7.1	0.0	0.0	18.0	28.5	26.0	-37.1%	-30.8%
Ruddy Duck	0.0	0.0	0.0	0.0	0.0	0.0	3.1	3.3	-100.0%	-100.0%
Subtotal	111.1	7.0	21.8	7.5	33.9	181.4	155.2	119.2	16.9%	52.2%
Miscellaneous										
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	--	-100.0%
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	--	-100.0%
Scoters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	--	-100.0%
Mergansers	19.1	1.5	6.3	1.6	10.6	39.1	65.7	80.8	-40.5%	-51.6%
Subtotal	19.1	1.5	6.3	1.6	10.6	39.1	65.7	82.7	-40.5%	-52.7%
Total Ducks	233.7	28.7	81.2	45.5	250.1	639.2	474.9	550.3	34.6%	16.2%
Canada Goose	48.7	180.6	106.9	24.7	162.7	523.7	461.5	564.7	13.5%	-7.3%
Am. coot	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.5	-100.0%	-100.0%

Appendix 1. Long-term trend in adjusted waterfowl breeding population estimates (thousands) for Eastern Ontario and New York.

Species/Ponds	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Ducks										
Dabblers										
Mallard	173.0	122.5	265.2	252.6	170.0	184.9	226.7	171.3	118.0	115.5
Am. black duck	103.0	65.7	73.5	49.2	59.2	89.3	39.9	38.9	39.0	31.7
Gadwall	11.2	7.4	3.6	1.9	0.0	30.6	6.6	2.7	4.0	13.7
Am. wigeon	28.8	35.1	6.7	9.4	14.6	13.8	17.0	11.0	4.3	62.8
Am. green-winged teal	28.8	21.7	19.2	22.0	106.9	39.0	64.0	34.4	16.7	138.4
Blue-winged teal	126.2	39.9	40.9	282.4	78.9	53.6	16.1	14.9	14.6	1.6
N. shoveler	0.7	2.2	0.0	1.0	1.1	0.5	2.4	0.0	0.0	2.4
N. pintail	25.6	3.4	2.0	0.4	1.1	1.4	1.5	3.5	0.0	2.4
Subtotal	497.2	297.8	411.1	618.9	431.7	413.0	374.2	276.6	196.7	368.5
Divers										
Redhead	4.7	3.6	0.7	4.5	5.8	6.1	1.8	3.0	0.8	0.0
Canvasback	3.3	4.4	1.5	3.0	4.6	2.1	0.0	0.0	0.0	0.0
Scaups	10.3	3.4	7.2	5.0	15.2	4.7	6.3	20.7	12.7	1.5
Ring-necked duck	50.4	44.9	105.9	63.7	98.8	86.1	21.7	36.6	7.2	16.0
Goldeneyes	14.0	20.5	99.6	22.8	10.6	2.8	6.4	15.4	48.4	26.7
Bufflehead	58.4	40.2	42.4	8.9	26.6	17.0	25.6	3.3	25.2	19.1
Ruddy Duck	0.0	12.0	0.0	5.1	0.0	0.0	12.2	0.0	4.5	5.6
Subtotal	141.2	129.0	257.2	112.9	161.6	118.8	73.9	79.0	98.9	68.9
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.9
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0
Scoters	0.0	0.8	0.9	0.0	0.0	5.0	0.2	0.0	0.0	0.2
Mergansers	69.5	106.8	61.3	55.4	272.1	154.4	150.7	35.0	6.1	35.9
Subtotal	69.5	107.5	62.2	59.3	272.1	159.3	154.4	35.0	6.1	37.0
Total Ducks	707.9	534.3	730.5	791.0	865.4	691.2	602.5	390.6	301.7	474.4
Canada Goose	364.5	854.0	145.5	221.8	279.4	325.1	123.4	85.1	128.1	2473.3
Am. coot	3.1	19.0	6.1	5.1	2.4	5.2	15.6	0.0	0.8	0.0

Species/Ponds	2000	2001	2002	2003
Ducks				
Dabblers				
Mallard	95.5	138.4	167.1	194.3
Am. black duck	41.2	40.1	33.9	56.4
Gadwall	2.8	1.1	5.3	6.7
Am. wigeon	3.9	9.0	8.0	13.1
Am. green-winged teal	22.1	28.6	38.5	139.3
Blue-winged teal	6.1	0.0	0.0	7
N. shoveler	0.0	0.5	1.2	0
N. pintail	0.0	0.0	0.0	2
Subtotal	171.5	217.8	253.9	418.7
Divers				
Redhead	0.5	2.3	0.0	0
Canvasback	0.0	0.0	0.0	0
Scaups	13.1	0.3	0.0	16.4
Ring-necked duck	21.9	27.1	115.1	74.7
Goldeneyes	11.9	33.6	8.5	72.4
Bufflehead	7.3	35.0	28.5	18
Ruddy Duck	0.0	0.0	3.1	0
Subtotal	54.6	98.3	155.2	181.4
Miscellaneous				
Oldsquaw	10.0	0.0	0.0	0
Eiders	0.0	0.0	0.0	0
Scoters	0.0	0.0	0.0	0
Mergansers	24.3	13.3	65.7	39.1
Subtotal	34.3	13.3	65.7	39.1
Total Ducks	260.4	329.4	474.9	639.2
Canada Goose	176.9	1703.0	461.5	523.7
Am. coot	0.0	0.0	1.0	0